CLAIMS

1. A crankcase scavenged and lubricated four-stroke engine (1) comprising:

a cylinder (2);

a piston (3) movably mounted in the cylinder in order to rotatingly drive a crankshaft (4) via a connecting rod (5);

the cylinder and the piston conjointly delimiting a combustion chamber (6);

the cylinder having an intake opening (7) and an intake valve (8) for opening and closing the intake opening;

the cylinder having an exhaust opening (9) and an exhaust valve (10) for opening and closing the exhaust opening, followed by an exhaust duct (28);

a mixture-preparation device (15) for supplying an air/fuel-lubricant mixture or for supplying in two steps an air/lubricant mixture and an air/fuel mixture;

a crankcase (11) connected to the cylinder and delimiting together with the underside of the piston (3) a crankcase volume (12) , to which at least air (13) and lubricant (14) is supplied by the mixture preparation device;

an intake channel (16) connecting to the crankcase or cylinder to supply at least air (13) to the crankcase volume (12);

an overflow channel (17) connecting to the crankcase or cylinder and to the intake opening (7) with intake valve (8) to supply to the intake at least air and lubricant from the crankcase volume;

a valve drive assembly (18) driven by said crankshaft (4) for actuating the intake valve (8) and the exhaust valve (10), c h a r a c t e r i z e d in that it further comprises:

a valve drive assembly housing (19, 20, 21, 21', 22) comprising one or more sections (19, 20, 21, 21', 22) which is/are separate from the crankcase volume but in communication exclusively with the crankcase volume through at least one **small size** passage (23, 24, 25, 26, 27), and each section (19, 20, 21, 21', 22) of the valve drive assembly housing has a lowest part situated higher in the axial direction of the cylinder bore, i.e. closer to the combustion chamber, than the lowest part of the crankcase.

2. A four-stroke engine according to claim 1, wherein the valve drive assembly has a crankshaft gear wheel (29) or a chain sprocket arranged on the crankshaft and the lowest section (19) of the valve drive assembly housing that surrounds this gear wheel has an approximate radius that is considerably smaller than the corresponding radius of the crankcase and can therefore not form an oil sump.

3. A four-stroke engine according to claim 1, wherein the at least one small size passage (23) is free from valves.

4. A four-stroke engine according to claim 3, wherein there is only a single small size passage (23) free from valves.

5. A four-stroke engine according to claim 1, 2 or 3, wherein the at least one small size passage (24) or duct connecting the crankcase volume and the lubricating place constituted by the valve drive assembly housing (19, 20, 21, 21', 22) is provided with a check valve.

6. A four-stroke engine according to claim 5, wherein the check valve is arranged to allow flow only into the valve drive assembly housing.

7. A four-stroke engine according to claim 5 or 6, wherein the check valve is arranged to allow flow only from the valve drive assembly housing.

8. A four-stroke engine according to claim 1-3 or 5-7, wherein the at least one passage (25) is opened and shut by the piston (3).

9. A four-stroke engine according to any one of the preceding claims, wherein the at least one passage (26, 27) is controlled by a rotary valve.

10. A four-stroke engine according to any one of the preceding claims, wherein the at least one small size passage (23, 24, 25, 26, 27) has a combined cross-section area smaller than the cross-section area of an aperture with a diameter of 40 % of the cylinder diameter, and preferably of 30 % of the cylinder diameter.

11. A four-stroke engine according to any one of the preceding claims, wherein the at least one small size passage (23, 24, 25, 26, 27) has a combined cross-section area smaller than the cross-section area of an aperture with a diameter of 20 % of the cylinder diameter, and preferably of 10 % of the cylinder diameter.

12. A four-stroke engine according to any one of the preceding claims, wherein the mixture preparation device is in the form of a carburettor or low-pressure injection system providing an air-fuel-lubricant mixture to the crankcase volume.

13. A four-stroke engine according to any one of the preceding claims, wherein the mixture preparation device is in the form of a two step apparatus, the first step mixing lubricant from a tank with air in the intake duct or in the crankcase volume and the second step mixing fuel and air in the over-flow channel (7).

14. A four-stroke engine according to any one of the preceding claims, wherein the overflow channel (17) is supplied with a check valve (30) to allow flow only from the crankcase.

15. A four-stroke engine according to any one of the preceding claims, wherein the overflow channel (17) is controlled by a rotary valve.

16. A four-stroke engine according to claim 15, wherein both the overflow channel (17) and the intake channel (16) is controlled by a rotary valve.

17. A four-stroke engine according to claim 9, 15 or 16, wherein the rotary valve is constituted by the crank mechanism (31, 31').

18. A four-stroke engine according to claim 9 or 15, wherein the rotary valve is constituted by parts driven by the cam shaft or driven at the same speed as the cam shaft, i.e. half the speed of the crankshaft.